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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/710,395	07/07/2004	Wang-Sheng Chen	ADTP0113USA	4394

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EXAMINER	
TADESSE, YEWEBDAR T	
ART UNIT	**PAPER NUMBER**
1734	

DATE MAILED: 01/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/710,395	CHEN ET AL.	
	Examiner	Art Unit	
	Yewebdar T. Tadesse	1734	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 October 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) *11-20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1, 3-5, 7-8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeno et al (US 4,886,012) in view of Yoshio (US 5,778,911).

As to claims 1 and 7-8, Ikeno et al discloses (see Fig 2, column 1, lines 5-7, column 4, lines 50-65) a photoresist coating system comprising a chemical tank (container 11) for positioning at least one photoresist bottle (6), the photoresist bottle being used for storing photoresist solution supplied to the photoresist coating system; a cooling system (refrigerated container and cooling jacket 14) for chilling the photoresist

solution in the photoresist bottle; a heating system (heat exchanger 12) for heating the photoresist solution; and an automatic photoresist feed system for delivering the photoresist solution to a substrate (nozzle 10 with a control valve 9). Ikeno et al lacks teaching a feed system comprising a draining device for draining the photoresist solution in the photoresist bottle by utilizing the principle of draining. Yoshio discloses (see Fig 2) an automatic photoresist feed system comprising a draining device (circulation cup 12 with a drain pipe 13) for draining the photoresist solution in the photoresist bottle by utilizing the principle of draining and pushing using pumps (15 and 18). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a feed system comprising a draining device for draining the photoresist solution in the photoresist bottle by utilizing the principle of draining in Ikeno to enhance the overall efficiency of the system.

As to claim 3, Ikeno discloses (see Fig 6) at least one temperature sensor for detecting a temperature of the photoresist solution in the photoresist bottle and a control circuit (control unit 26) electrically connected to the temperature sensor (27), the cooling system and the heating system for temperature controlling.

With respect to claims 4-5, in Ikeno the heating system temperature is between 20° –25° and the cooling system (refrigerated container) is capable of having a temperature between -5°, and -25°.

As to claim 10, Ikeno discloses a waste collecting system (chamber 3 with drain 4) for reclaiming the photoresist solution sprayed during spinning coating.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeno in view of Yoshio as applied to claim 1 above, and further in view of Fukuda et al (US 5,733,375) or Anderson et al (US 5,058,805). Ikeno lacks teaching at least one sensor for detecting an amount of the photoresist solution in the photoresist bottle. However, the use of level sensors for a tank or bottle containing a coating liquid is well known in the art to control the flow of the liquid coating material; for instance - Fukuda et al discloses (see Fig 1) at least one sensor (15) for a coating bottle (tank 3) and Anderson discloses (see Fig 3) sensors (178, 180, 182 and 184) for reservoirs (158 and 152). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include sensors detecting the amount of photoresist solution in the bottle of Ikeno to insure the flow of coating material or to regulate or adjust the flow of coating material based on the detected level of the coating material in the tank or bottle.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeno in view of Yoshio as applied to claim 1 above, and further in view of Ishii et al (US 6,903,030). Ikeno teaches a cooling system having a cooling jacket, however a cooling system comprising a coolant, a water jacket, a water pump, a water pump, a water tank or a thermostat is not taught. Ishii discloses (see Fig 4 and column 7, lines 48-55) a cooling system comprising a coolant, water flowing through the cooling jacket a supply unit 67 and a thermostat (temperature detector 68). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a cooling

system having elements as claimed in Ikeno to maintain the coating material within the container or bottle at the desired cooling temperature.

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeno in view of Yoshio as applied to claim 1 above, and further in view of Sakamoto (US 6,193,783). Ikeno lacks teaching a system having a bubble trap tank for collecting bubbles in the photoresist solution. Sakamoto discloses (see column 3, lines 64-66 and Fig 1) a bubble trap tank (16) for a processing solution supply apparatus. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a bubble trap tank in Ikeno to uniformly apply the coating material onto the substrate.

Response to Arguments

7. Applicant's arguments filed 10/28/2005 have been fully considered but they are not persuasive.

8. In response to applicant's argument that " in Yoshio, the circulation cup and the drain pipe cannot drain the photoresist solution from the tank and deliver the solution into the nozzle", examiner disagrees because the liquid pump help drain the photoresist solution from the tank 16 into the nozzle. As shown in the rejection above, Yoshio's pumping device (pumps 15, 18) is there to feed or deliver the solution into the nozzle.

With respect to applicant's argument that if Ikeno combined with Yoshio, the photoresist would collect into the bottle. Examiner respectfully disagrees because the

pushing means (pumps 15, 18) are also considered as part of the feeding system recirculating the material into the nozzle. Applicants claim (see claims 1 and 8) an automatic feed system comprising draining and pushing device. Yoshio discloses a feeding system assembly comprising draining and pushing device as shown in the rejection above. One in the art would combine Ikeno and Yoshio to prevent wastage of coating material. Additionally, how to connect and disconnect nozzle, with valves and other fluid conveying piping system is within the art of invention (per applicant's argument combining Ikeno with Yoshio could not result in the application of the solution onto the substrate).

9. Per applicants' amendment, the 112 2nd par. rejection is withdrawn.

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yewebdar T. Tadesse whose telephone number is (571) 272-1238. The examiner can normally be reached on Monday-Friday 8:00 AM-4: 30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Fiorilla can be reached on (571) 272-1187. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

YTT

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SUPERVISORY PATENT EXAMINER
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